To: McCone, Ryan (DEQ)[McConeR@michigan.gov]; Burdick, Melanie[Burdick.Melanie@epa.gov]
Cc: Wilson, Kristina (DEQ)[WilsonK17@michigan.gov]; Okeefe, Colleen (DEQ)[OKEEFEC@michigan.gov]
From: Pennington, Michael (DEQ)
Sent: Thur 3/2/2017 6:58:07 PM
Subject: RE: 2GV-CN5M-W9WT: Draft DEQ Response to Carmeuse Lime & Stone

To all,

So I've pondered this for quite a while before responding and I offer these comments:

1. I'm a little unclear on exactly how many piezometers will be used and where they will be placed. What I suggest is that they use three monitoring wells per the 4 transects that will be used for vegetation sampling (12 total). Also, their proposed installation method is written in another language. I'm not even sure that they should be using piezometers (unless they are using groups of nested piezometers to measure groundwater pressure gradients). Assuming the soils are sandy in that area (over the bedrock) they should probably just be using groundwater monitoring wells installed per USACE specs.

2. I'm fine with the 6 inches but it may need to be more defined. Research shows that 3.5 inches can make a difference between wetland and upland. The vegetation sampling should be able to pull out any detectable differences. So if you have 3 wells along one of the transects and the well closest to the pit is 6 inches lower than the well further away from the pit then that is the red flag? I just want to make sure we are on the same page. Also, if the transect is only 300' away is that sufficient for the proposed impact based on modelling?

3. For vegetation sampling I suggest that they follow our standard procedures for the 1m quadrat and not sampling in accordance with the delineation manual. The delineation manual uses absolute percent cover (which can be over 100% due to layering). I think they should be using cover relative to the quadrat (can't exceed 100%). It's easier to detect changes using relative. Also, what we are looking for is trends towards a different type of wetland or upland over the monitoring period. If it appears that transects are trending towards upland (or trending from a predominance of FACW species to FAC or FACU species) then there is likely an impact. Also, vegetation sampling should occur within the same 2 week period each year (say July 15-July 31) in order to take out seasonable variability. You could also use something like average wetness indicator to detect a difference. I like using FQI but it may not be detectable in the 5 year period since it takes into account all species (wetland and upland).

If you want I can produce a word file of Section 5 and see what I can come up with for suggested language. Let me know.

Section 5:

a. Title may be more accurate if revised to "Wetland and Stream Monitoring and Adaptive Management Plan"
b. Two control location piezometers should be included

i. One in each major soil types of the area

ii. Both outside the 25-year plan boundary and beyond potential groundwater drawdown area, "halo" to be able to differentiate mine impacts from natural fluctuation. What percent difference from natural fluctuations will be deemed an impact? Given that impacts to hydrophytic vegetation typically occur when water levels drop out of the root zone (i.e., more than 18" below the soil surface), I'd recommend that any groundwater level that sinks more than 18" below the soil surface for a continuous period exceeding one week within the areas of impact monitoring that are not paired with an analogous groundwater level drop (depth and duration) in at least one of the two control monitoring piezometers would be considered an impact. If Carmeuse is concerned with this, then perhaps they should consider more than two control piezometers. *** Mike P – Do you have any standards that would better apply here and be valid statewide so we are consistent when faced with similar situations in the future? Please provide an alternative if you can come up with one. *** We are using 6 inches average over the growing season as an impact threshold for the Back Forty. We got this number after discussions with Lansing staff and the threshold for impacts that are used downstate for drain impacts to wetlands. Piezometer data will likely not be collected weekly and I'm not sure what their recording period is. We may want to clarify this with Carmeuse to see what type of piezometers they are currently using and how that information is collected and reviewed.

i. For vegetation change, is there a percent decrease in FQI that would be considered an impact? *** Mike P – Do you know of a standard FQI value is considered the minimum threshold for a high quality wetland (or perhaps multiple values for different wetland types) that would be valid statewide so we are consistent when faced with similar situations in the future? Please provide input on this. *** What we are looking for here is a change in community type, this will be the key indicator in secondary impacts. An FQI score is fine, but it is possible for a FQI score to remain similar as a community transitions from emergent to shrub, etc. This may be where KME's index becomes useful. If we transition for a -4.3 to a -2 over a year or two, this would be an indicator that we have a transition community. So, maybe this metric can be used and when a community transitions 3 points (this would be from OBL to FAC/FACW, etc.) this could be considered an impact.

Michael Pennington

Wetland Mitigation Specialist

Wetlands, Lakes and Streams Unit

Water Resources Division, DEQ

New Number: 517-282-5768

From: McCone, Ryan (DEQ)
Sent: Thursday, March 2, 2017 11:22 AM
To: Burdick, Melanie <Burdick.Melanie@epa.gov>
Cc: Wilson, Kristina (DEQ) <WilsonK17@michigan.gov>; Okeefe, Colleen (DEQ) <OKEEFEC@michigan.gov>; Pennington, Michael (DEQ) <PENNINGTONM@michigan.gov>
Subject: RE: 2GV-CN5M-W9WT: Draft DEQ Response to Carmeuse Lime & Stone

Thanks Melanie, that suggestions aligns well with Kristi's suggestion in the attached version. See her Light Blue comments.

Ryan L McCone

Senior Environmental Quality Analyst

Michigan Department of Environmental Quality

Upper Peninsula District

Water Resources Division

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From: Burdick, Melanie [mailto:Burdick.Melanie@epa.gov]
Sent: Thursday, March 2, 2017 11:03 AM
To: McCone, Ryan (DEQ) <McConeR@michigan.gov>
Subject: RE: 2GV-CN5M-W9WT: Draft DEQ Response to Carmeuse Lime & Stone

Impacts to wetlands from wetlands. The example is from Minnesota. It said 25% difference from baseline water-level change would require more frequent sampling and notification to the Corps, an 50% change from baseline would be considered an impact to be restored or mitigated because you would likely find vegetation change. Another metric they use is based on the wetland type. For all of the wetland types listed, 6 inches of drawdown won't have a significant affect so I am okay with that metric.

An option to use the reference location would be that 6 inches of drawdown is an impact if the difference from the reference site is shown to be statistically significant. That would rule out any argument of a draught causing the drawdown.

From: McCone, Ryan (DEQ) [mailto:McConeR@michigan.gov]
Sent: Thursday, March 02, 2017 7:53 AM
To: Burdick, Melanie <Burdick.Melanie@epa.gov>; Okeefe, Colleen (DEQ) <OKEEFEC@michigan.gov>
Subject: RE: 2GV-CN5M-W9WT: Draft DEQ Response to Carmeuse Lime & Stone

Thanks Melanie. I'm putting together some response in writing so all the involved staff have the same info. Let's talk today after I send that to you. Thanks again. -Ryan

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From: Burdick, Melanie [mailto:Burdick.Melanie@epa.gov]
Sent: Wednesday, March 1, 2017 6:07 PM
To: McCone, Ryan (DEQ) <McConeR@michigan.gov>
Cc: Wilson, Kristina (DEQ) <WilsonK17@michigan.gov>; Pennala, Virginia (DEQ) <PENNALAV@michigan.gov>; Matousek, Bethany (DEQ) <MatousekB@michigan.gov>; Pennala, Virginia (DEQ) <PENNALAV@michigan.gov>; Lounds, Amy (DEQ) <LOUNDSA@michigan.gov>; Okeefe, Colleen (DEQ) <OKEEFEC@michigan.gov>
Subject: RE: 2GV-CN5M-W9WT: Draft DEQ Response to Carmeuse Lime & Stone

Ryan,

I added a few comments and questions to your response (in red). Let me know if you have time to discuss Thursday, tomorrow.

Thanks,

Melanie Burdick

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From: McCone, Ryan (DEQ) [mailto:McConeR@michigan.gov]
Sent: Tuesday, February 28, 2017 12:54 PM
To: Burdick, Melanie <Burdick.Melanie@epa.gov>; Okeefe, Colleen (DEQ) <OKEEFEC@michigan.gov>
Cc: Wilson, Kristina (DEQ) <WilsonK17@michigan.gov>; Pennala, Virginia (DEQ) <PENNALAV@michigan.gov>; Matousek, Bethany (DEQ) <MatousekB@michigan.gov>; Pennala, Virginia (DEQ) <PENNALAV@michigan.gov>; Lounds, Amy (DEQ) <LOUNDSA@michigan.gov>
Subject: 2GV-CN5M-W9WT: Draft DEQ Response to Carmeuse Lime & Stone
Importance: High

Colleen & Melanie,

Please find below the draft DEQ response to Carmeuse's 2/21/2017 letter response to the EPA's 12/14/2016 objection. I wanted to run this by you both before sending it to Carmeuse and King & MacGregor. Specifically, please let me know if you have any comment or concerns with on the draft permit condition language that Melanie inquired about during our call last Friday (see green text in first list of comments below). Kristi and I jointly drafted this but I want to be sure you're comfortable with it. Revisions to it can be made if necessary. Also, I believe the balance of the outlined information below captures the comments provided by each of you, as well as Mike Pennington, during our calls last week. If you I missed anything, please let me know. Once I hear back from you both I'll forward this information Carmeuse and K&M.

Melanie – FYI, I spoke with Matt MacGregor this morning about the past creation mitigation cell monitoring reports you requested. He indicated that he'd be uploading them to the DEQ FTP today but I have yet to see them there. Once they're available I'll let you know. He also tried emailing them, but the email never came through to either Kristi or I.

Thanks,

-Ryan

Hey Matt, Chris, and Mike,

Last week the DEQ and EPA reviewed Carmeuse's February 21, 2017 response to the EPA's December 14, 2016 objection letter for wetland permit application 2GV-CN5M-W9WT. Based on those reviews and a couple subsequent discussions, I've compiled two list of items to pass along to you. The first list pertains specifically to the current permit application and is intended to help Carmeuse address the EPA's objections. As you know, the EPA has the sole authority and discretion to lift or maintain their objections. However, these items in the first list may help Carmeuse address some of those concerns. The second list pertains to Carmeuse potentially setting up a Single User Mitigation Site consisting of the Larsen Property (less the 231 acres of preservation proposed for the current application), approximately 276 acres of future wetland creation in former tailing disposal areas, and approximately 2 miles of Milakokia River stream restoration. As I've discussed with most of you, I think it will benefit all involved if we keep these two topics separate and work to address the current permit application and objections during the time we have left and work through the details of a Single User Mitigation Site as a separate agreement.

<u>List 1: Addressing EPA Objections to Current Permit Application</u>

1. Section 1: Cumulative impacts resulting from both previously permitted activities and currently proposed activities must be addressed. Any DEQ permit issued for the currently proposed project will be specifically conditioned to require all outstanding mitigation requirements (e.g., conservation easements, long-term stewardship agreements and endowments with a third party, etc.) be resolved prior to:
    a. Any newly authorized work within regulated areas occurring
    b. Prior to a set date during 2017

Permit condition language could be similar to: "*No work in regulated areas authorized by this permit may occur until all outstanding mitigation requirements are met. These requirements include the mitigation outlined in MDEQ permit 11-77-0011-P and the associated Letter of Modification issued under submission 2DF-N0Y2-AKJ2, dated March 15, 2016. Specifically, the long-term stewardship agreement, non-wasting endowment, and conservation easement required*

by those documents must be established. A nine month interim stewardship agreement and funding mechanism may temporarily be substituted for the requisite long-term stewardship agreement and non-wasting endowment if approved in writing by the DEQ within 30 days of the issuance of this permit. The requisite long-term stewardship agreement, non-wasting endowment, and conservation easement shall be effective no later than nine months from the date of this permit."

•□□□□□□ Why 9 months? What if they don't have it done by 9 months?

2. Section 5:
    a. Title may be more accurate if revised to "Wetland and Stream Monitoring and Adaptive Management Plan"
    b. Two control location piezometers should be included

        i. One in each major soil types of the area

        ii. Both outside the 25-year plan boundary and beyond potential groundwater drawdown area, "halo" to be able to differentiate mine impacts from natural fluctuation. What percent difference from natural fluctuations will be deemed an impact?

        iii. For vegetation change, is there a percent decrease in FQI that would be considered an impact?

    c. A reference reach (control) stream gauge should be included

Also, for streams, what metrics of the stream survey would be used to determine if there is a downstream impact? What change would be allowed without it being called an impact?

    d. The Adaptive Management Plan should be expanded to include some potential actions for addressing the potential impacts already listed. For example:

        i. Changes in wetland hydrology adjacent to the proposed "halo" could be potentially be addressed by expansion of the halo's width, grouting areas of seepage on the outside of the halo, temporarily pumping water into the site as "make up" until a permanent solution is achieved, etc.

        ii. Invasive species known present in the general area could be listed and mapped if present and a general description of treatment options for each proposed.

        iii. Significant changes to wetland plant communities stemming from changes in hydrologic conditions could potentially be addressed by altering the contribution of water to creation cells from the Milakokia River, reseeding or revegetating wetland species better adapted to the altered hydrology, etc. This refers to the adaptive management plan at the creation site, which should be in a different section than adaptive management for potential impacts from de-watering, etc.

3. Section 6 "Mitigation Concept Summary" Provide a final mitigation plan prior to beginning work in regulated areas.
    a. Creation Mitigation Sub-Sections 7 and 8: Monitoring and maintenance of the Milakokia River culvert necessary in perpetuity or until replaced with a permanent fixed-crest weir. Also financial assurances for that maintenance.
    b. Performance standards: 20% open water seems high. 15 % is more standard in Michigan; I would recommend 10% in this case.
    c. How many acres of scrub/shrub vs. emergent will be created?
    d. Creation of 10.5-acres of scrub/shrub and emergent wetland will require a construction financial assurance instrument, not just an endowment for long-term steward.

List 2: Potential Single User Mitigation Site: EPA would like to see an agreed to timeline to develop this agreement and a timeline for when it would be constructed once approved by both MDEQ and EPA. It likely would need to be reviewed by FWS and the U.S. Army Corps of Engineers.

1. Section 1 "Aquatic Resource Assessment" and Section 6 "Mitigation Concept Summary" - Milakokia River mitigation inclusion in a Single User Mitigation Site for potential use by Carmeuse in mitigating future stream impacts requires: For this to work, there needs to be a method for crediting and debiting. Does MDEQ have a plan for this? Otherwise, the applicant could propose a method for approval.
    a. A complete baseline assessment

i. Current conditions

1. Establish one or more reference reaches in the Milakokia River u/s of stream mitigation area (for use as control sites).

2. Establish monitoring reaches within mitigation area.

ii. Field assess and document current and/or historic impacts to or degradations of the mitigation area channel.

iii. Level II and III Rosgen Channel Classification and Assessment – Control reference reach and monitoring reaches.

iv. Bank Erosion Hazard Index (BEHI) assessments – Control

reference reach and monitoring reaches.

v. Bank erosion pins or head pins

vi. P51 Assessment – Control reference reach and monitoring reaches.

1. Fish Community

2. Benthic Macroinvertebrates

3. Habitat Quality

vii. Species richness and Shannon-Weiner diversity index values (control reference reach and monitoring reaches) for:

1. Fish Community

2. Benthic macroinvertebrate community

3. Aquatic vegetation community

viii. Benthic substrate particle size distribution – Control reference reach and monitoring reaches.

b. A complete, detailed stream mitigation plan
c. Performance standards

i. To be achieved within 5 years of reestablishing flow

ii. To be shown stable over at least 3 continuous years of monitoring

iii. Potential Performance Standards:

1. Dynamic channel stability

a. No change in Rosgen channel type/classification

b. No decrease in mean entrenchment ratio

c. Mean stream bank erosion rate not to exceed 1 inch per year

d. Benthic particle size distribution and median congruent with reference reach (control) baseline assessment

2. Native fish, benthic macroinvertebrate, and aquatic vegetation recolonization congruent with baseline reference reach (control) communities

a. Species richness

b. Shannon-Weiner diversity index

c. P51 scores

d. Monitoring and reporting
e. Conservation Easement over the restored 2 mile reach
f. Long-term management plan
g. Third-party stewardship agreement
h. Stewardship endowment

2. Section 6 "Mitigation Concept Summary" – Proposed inclusion of wetlands in a Single User Mitigation Site:
   a. Wetlands proposed for inclusion:

i. Approximately 919 acres of Larsen Property (i.e., the balance of acreage not used for mitigation under current permit application)

1. Preservation

2. Creation

3. Restoration

ii. Approximately 276 acres of wetland creation in former tailings disposal areas (Figure 6-5)

b. Approval of a Single User Mitigation Site Agreement requires:

i. A complete, detailed baseline assessment of all areas proposed for preservation

1. Existing conditions

2. Existing impacts

3. Potential impacts

ii. Complete, detailed wetland mitigation plans for all areas of proposed preservation, creation, and/or restoration

iii. Monitoring and reporting for all areas of proposed preservation, creation, and/or restoration based on a detailed monitoring plan premised on representative and random sample areas, as well as sample sizes adequate to represent the proposed spatial extent of mitigation.

iv. Conservation Easements for all areas of proposed preservation, creation, and/or restoration

v. Short-term management plan(s) for all areas of proposed preservation, creation, and/or restoration to cover first 5 years of monitoring and/or to address unforeseen impacts uncovered during the baseline assessment

vi. Short-term third-party stewardship endowment or similar financial instrument for all areas of proposed preservation, creation, and/or restoration to cover first 5 years of monitoring and/or to address unforeseen impacts uncovered during the baseline assessment

vii. Long-term management plan(s) for all areas of proposed preservation, creation, and/or restoration

viii. Long-term third-party stewardship agreement for all areas of proposed preservation, creation, and/or restoration

ix. Long-term third-party stewardship endowment for all areas of proposed preservation, creation, and/or restoration (Note: This endowment would be in addition to that previously provided for the 231 acre preservation proposed for the current application)

c. Proposed mitigation credit determination system for areas of wetland preservation, creation, or restoration, as well as for stream restoration
d. Recognition that available mitigation credits do not alter:

i. The need for state and/or federal wetland and waterway permits

ii. The standard permit application review process

iii. The requirement that resource impacts be avoided and/or minimized whenever it is prudent and feasible to do so

I hope the information above is of assistance should Carmeuse choose to refine its response to the EPA's objections. I also hope it clarifies some of the "ground work" the DEQ and EPA see as necessary before a separate, single-user mitigation site can be formalized into an agreement.

Please let me know if you have any questions or if I may be of further assistance.

Thank you.

Sincerely,

-Ryan

Ryan L McCone

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